

WASHINGTON STATE DEPARTMENT OF ECOLOGY

RESPONSIVENESS SUMMARY

RESPONSES TO PUBLIC COMMENTS

RECEIVED DURING THE

90-DAY FORMAL COMMENT PERIOD FOR THE

FORMER DUPONT WORKS CLEANUP SITE

LOCATED IN PIERCE COUNTY, WASHINGTON

July 2003

The attached document, known as a Responsiveness Summary, has been written to provide the public with the Washington State Department of Ecology's responses to all the comments and questions that were received. Both written and verbal public comments were received during the formal comment period for the draft cleanup action plan, remedial investigation/risk assessment/feasibility study (RI/RA/FS), and proposed consent decree between Ecology, Weyerhaeuser Company and E.I. DuPont de Nemours and Company for the work to be conducted at the Former DuPont Works site. This Responsiveness Summary is a compilation of the specific questions received, followed by Ecology's response.

The Washington State Department of Ecology (Ecology) held a public comment period on the major documents for the former DuPont Works Site located in DuPont Washington, Pierce County. Under the terms of the Model Toxics Control Act Cleanup Regulations (Chapter 173-340 WAC), a 90-day public comment period was held from January 22 to April 23, 2003. The Model Toxics Control Act (MTCA) regulations specify a 30-day public comment period, however more time was provided from the outset due to the large number of lengthy documents that were available for review and comment. The following documents were available for review and comment:

1. Draft Final Remedial Investigation Report, dated January 2003
2. Draft Final Human Health and Ecological Risk Assessment, dated January 2003
3. Draft Final Feasibility Study, date January 2003
4. Draft Final Cleanup Action Plan, dated January 2003, and
5. Draft Final Consent Decree (not dated)

The above listed documents were available for review at the Department of Ecology's Southwest Regional Office, Pierce County Library - Lakewood Branch, DuPont City Hall, the Department of Ecology web page, and electronic copies on compact disk were also available free of charge. Printed copies of the documents were also provided to the DuPont Toxics Citizen Oversight Project, a citizen group that received Ecology grant funds to enhance public involvement activities.

The Remedial Investigation report represents the former DuPont Works Site in its current environmental condition, after many years of prior investigation and interim cleanup activities. The Human Health and Ecological Assessment evaluates the risk to people and to the environment from the contamination at the site. The Feasibility Study evaluates various cleanup actions to address the contamination and thereby reducing the risk to acceptable levels or eliminating the risk entirely. A preferred cleanup action or actions for the Site are proposed by the companies (Weyerhaeuser Company and E. I. DuPont de Nemours and Company (DuPont)) in the Feasibility Study. The Cleanup Action Plan is Ecology's decision document on what actions shall be taken at the Site to adequately protect human health and the environment. The Consent Decree is the legal agreement between Ecology and the Companies that will be entered into State Superior Court, for the implementation of the Cleanup Action Plan.

During the 90-day public comment period, an informational workshop meeting was held at DuPont City Hall on February 12, 2003. Approximately 20 members of the public attended the workshop and were provided with a brief overview of the above listed documents and an opportunity to ask question and provide input to Ecology and the companies. A public meeting (hearing) was held on March 12th at DuPont City Hall with about 15 members of the public attending. As with the public workshop, a brief overview was provided by Ecology and an opportunity for the public to ask questions and make comments. When possible, immediate responses were provided by staff from Ecology or the companies and their representatives. Notes were taken during the two public meetings and are reflected in the Responsiveness Summary. A taped transcript was not made at either gathering. During the public comment period, Ecology received 3 letters and 6 different individuals sent e-mails. Responses to comments and answers to questions are provided in this Responsiveness Summary. Based on public input, various changes (additions, deletions, and corrections) were made to most of the documents. The changes to the documents have been evaluated and are not considered to be significant. The overall cleanup actions that were originally proposed have remained unchanged.

If you have any questions regarding this Responsiveness Summary, would like to be included on Ecology's Former DuPont Works site mailing list, or have questions regarding the Former DuPont Works site, please call Ecology's designated project manager. The project manager is Mike Blum, and he can be reached by telephone at 360-407-6262. His mailing and e-mail addresses are:

Mike Blum

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Olympia, WA 98504-7775

e-mail: mblu461@ecy.wa.gov

If you would like to review more detailed documents related to the site than those in the information repositories, please contact Ecology's regional records center at (360) 407-6365 to schedule an appointment. Information repositories have been set up at the three following locations:

Ecology Southwest Regional Office

300 Desmond Drive

Lacey, WA 98504-7775

Lakewood Library

6300 Wildaire Road SW

Lakewood, WA 98499-1321

(253) 582-6040

www.ecy.wa.gov/programs/tcp/sites/weyer/weyerhaeuser.htm

Ecology would like to thank West Shore Corporation NW and Pioneer Technologies, Inc. for their assistance and cooperation in drafting this document. Ecology appreciates the time and effort spent by the public to review and comment on the documents as well as attending one or both of the public meetings. Ecology hopes that this Responsiveness Summary is beneficial to you, the public.

The following format is being used in this Responsiveness Summary:

Comment # (a numbered list of comments. For some oral comments or letters, they are broken down into separate comments)

Commenter: (the commenter's name)

Comment Type: (oral comments, e-mails, and letters - including primary technical review or editorial comments)

Document: (identifies whether the comment/question relates to a specific document)

Location in Document: (if related to a specific document, the page or section number is noted here)

Comment: (these are the comments, questions or statements made by members of the public to Ecology)

Response: (this is the response, or answer, or acknowledgement by Ecology of statements made by the public)

Responder: (this identifies who is the responder or responders)

Change to the Document(s): (this identifies if any changes are being made to the documents and specific locations)

Here are some acronyms which will be found in the Responsiveness Summary:

CAP - Cleanup Action Plan

CD - Consent Decree

CL - cleanup level

CLARC - Cleanup Levels and Risk Calculations under the Model Toxics Control Act

COPCs - contaminants of potential concern

CPF - cancer potency factor

DCAP - draft Cleanup Action Plan

DNT - dinitrotoluene

DTCOP or DToxCop - DuPont Toxics Citizen Oversight Project

Ecology - Washington State Department of Ecology

EPA - U.S. Environmental Protection Agency

EU - evaluation unit

FS - Feasibility Study

gpm - gallons per minute

HHRA - Human Health Risk Assessment

HRA - Heritage Research Associates, Inc

IEUBK - Integrated Exposure Uptake Biokinetic model

IRIS - Integrated Risk Information System under the Environmental Protection Agency

ISR - interim source removal

mg/kg - milligrams per kilogram (equivalent to parts per million)

mm - millimeter (one thousandth of a meter)

MOA - Memorandum of Agreement

MTCA - Model Toxics Control Act

MSU - miscellaneous small remediation unit

MW - monitor well

NA - Not Applicable

NGRR - narrow gauge railroad

OS - open space

PA - placement area

PLP - potential liable person or party

ppb - parts per billion

ppm - parts per million

RA - Risk Assessment

RI - Remedial Investigation

RL - remediation level

RU - remediation unit

TPH - total petroleum hydrocarbon

ug/l or $\mu\text{g/l}$ - micrograms per liter (equivalent to parts per billion)

um (or μm) - micrometer (micron or one millionth of a meter)

WSNW - West Shore Corp. Northwest (consulting company representing Weyerhaeuser and DuPont companies)

Comment # 1

Commenter: Ed Kenney

Comment Type: Public Workshop Comment

Document: Not Applicable (NA)

Location in Document: NA

Comment: How big is the clean area by the guard gate?

Response: About 27 acres

Responder: Jeff King (West Shore Corporation, NW (WSNW))

Change to the Document(s): No

Comment # 2

Commenter: Ed Kenney

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: How many tons of soil has gone to Arlington?

Response: Approximately 72,000 tons of mixed contaminated soil to either the Waste Management Landfill in Arlington, Oregon or, if petroleum-impacted soil, to TPS Technologies in Tacoma. Arlington received 16,000 tons and TPS Technologies received 56,000 tons.

Responder: Jeff King (WSNW)

Change to the Document(s): No

Comment # 3

Commenter: Ed Kenney

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: Mr. Kenney asked a question regarding archaeological sites (the exact question was not recorded) and he asked how large of an area is the 72-PI 404 Burial site?

Response: This is a sensitive archaeological site and in the 404 Burial Site, we've found graves in the past. There are 15 to 16 graves still missing. Weyerhaeuser is giving the burial area and a buffer to the Tribe. It will be capped and left in place and no one will work in that area. The Burial site is about three-fourths of an acre. All three historical locations (Burial site, Shell Midden site, and 1833 Fort site) total about 5 acres. The shell Midden is two-thirds larger on the Quadrant side than it shows on this map.

For the historical/cultural protection, a team of archaeologists are working at the site. HRA is now working there and as the soil is scraped, they will follow the scraper looking for artifacts, European or Native American. We (the companies) have hired tribal monitors from the Tribe as well as a Tribal archaeologist.

Responders: Jeff King (WSNW) and Mike Blum (Washington State Department of Ecology (Ecology))

Change to the Document(s): No

Comment # 4

Commenter: Ed Kenney

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: Is there a monitoring well near the Burning Ground? (Area 31)

Response: There used to be, but they were closed due to no DNT in the water.

Seep #1 in Puget Sound is still active. It comes out at the force of about 5 fire hydrants. It shows low concentrations of DNT, but far below marine surface water quality levels. Groundwater monitoring is continuing at the site. There used to be 27 wells and now only 5 are left that show any DNT. These wells are down-gradient from where DNT was first found in the soil. One more monitoring well will be installed. Sampling used to be done quarterly, but is now being done on an annual basis.

Responders: Jeff King and Mike Blum

Change to the Document(s): No

Comment # 5

Commenter: Carl Nadler

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: Where does the City get their water?

Response: Bell Hill wells and reservoir, located upgradient (upstream) from the DNT groundwater contamination (shown on map).

Responder: Mike Blum

Change to the Document(s): No

Comment # 6

Commenter: Ed Kenney

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: How much soil was actually washed? Does it go back on golf course as contaminated soil?

Response: 30,000 tons were washed and 2,500 tons of it went off site. All that stayed on site was tested to make sure it was under the approved remediation levels. It will be put in the placement areas of the golf course and capped

Responder: Brad Grimsted (PIONEER Technologies Corporation)

Change to the Document(s): No

Comment # 7

Commenter: Greg Glass

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: Did DuPont ever manufacture shot?

Response: No shot was manufactured at DuPont. Also, no military munitions were made on the site.

Responders: Mike Blum and Jeff King

Change to the Document(s): No

Comment # 8

Commenter: Ed Kenney

Comment Type: Public Workshop Comment

Document: NA

Location in Document: NA

Comment: Do you have any new samples of the dock area? What about other cleanup outside the consent decree boundary?

Response: No, we are in compliance. However, the documents only deal with the area inside the Consent Decree. Outside is to come later. There were some old magazines (storage bunkers for explosives before being shipped off-site.) located outside the Consent Decree area and those have been cleaned up. The only other place is near the mouth of the creek, where there was an above ground storage tank by the old powerhouse. Tanks were removed in 1987 and the sludge was taken out. Some contamination is still there and Ecology will work with the companies to address the contamination. Maybe digging in that area will make it worse. It is an ecologically sensitive area and we will deal with it later.

Responders: Mike Blum and Jeff King

Change to the Document(s): No

Comment # 9

Commenter: Bonnie Gee

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comments:

- a.) DOE went through years of analysis and came up with choices and the company made choices, you come up with cap and cover. They (the companies) pay the bill, but you don't work for them, so no collusion.
- b.) Do you have data on other sites and how effective and do they have same water structure as this, similar geology?
- c.) What do you know about migration along the water flow, is arsenic migration going to affect the area? Will arsenic leach? What I thought I understood is that arsenic can go upstream.
- d.) Are there plants you can use to get rid of the contamination?
- e.) Is there a problem on the Glacier side?

Responses:

- a.) Comment noted
- b.) I (Mike Blum) did go see a site in Anaconda Montana, a former smelter. It has similar contaminants - lead and arsenic. It seems to be working for that location. A few miles away at Tacoma Commencement Bay, arsenic is found in the Hybelos waterway. Site (log sort yard) was scraped and capped and monitored. Metal concentrations dropped to non-detect.
- c.) The lead and arsenic at the DuPont site do not leach. They stay bound in the soil and that is why scraping is so effective. Even if it did leach, the groundwater flow is to the northwest, away from the City wells. It depends on the specific type of arsenic. One of the reasons we had 27 monitoring wells is to check arsenic in water. There is no arsenic in this groundwater. We did various soil leaching tests and found that little to no arsenic or lead leachability.
- d.) Brake ferns will absorb arsenic but then you have to deal with the fronds. Don't know if it does much for metals. Using plants for remediation is not a proven technology. In my experience, it is not effective on a site this large. I'm (Dan Alexanian) not comfortable telling the public we have planted lots of trees and it is safe and effective. The golf course will have trees planted in it. The root ball areas will have extra clean soil put around them so the cap will not be compromised.
- e.) They are mining down 20 feet, I don't think so.

Responders: Mike Blum and Dan Alexanian (Washington State Department of Ecology)

Change to the Document(s): No

Comment # 10

Commenter: Penny Coffey

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: What is the reason for burning the buildings?

Response: There may have been explosive material inside the buildings, some DNT or something down in the cracks. They needed to get rid of the contamination. Sympathetic detonations were done around foundations to make sure everything was gone. It also helped break up the concrete foundations. A few foundations may be left for historical purposes.

Responder: Mike Blum

Change to the Document(s): No

Comment # 11

Commenter: Colleen Evans

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: What is the flexibility with the developer and the City? What if they can't get commercial in there, will industrial be allowed?

Response: If the City and landowner said we want to switch to industrial, they would come to Ecology and ask if it is still protective for that proposed land use? We would say yes because they are going to an industrial use which is less restrictive than commercial. If they went the other way and wanted residential, then we would say no.

In 1996 we were working with the City on the EIS and the City was concerned about land use issues and Ecology was concerned about the cleanup. The cleanup issues took precedence over land use.

Responder: Mike Blum

Change to the Document(s): No

Comment # 12

Commenter: Colleen Evans

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: Dust is a concern. With lead in the dust, do they monitor air quality and are they required to spray water?

Response: Workers wear personal air monitors and there have been no exceedances.

We (the companies) were concerned as well and didn't want to spread the contamination. We take safety very seriously. When we saw that houses were being built next to the site, we took an area of 250 feet from the boundary line and took perimeter air samples 24 hours a day. We are about ready to publish the report on that. We have been very successful keeping dust down to where there is no visible dust at all.

We (the companies) have budgeted around half a million dollars for dust control.

We (the companies) have learned that we need to pre-soak the ground a few hours before the scraping begins. It can be wet on the surface and dust a foot below it. You will see trucks down there in the wee hours of the morning.

If you hear the companies working and you see dust, call the companies or Ecology to report it.

Responders: Jeff King, Bob Martin (Weyerhaeuser Company) and Mike Blum

Change to the Document(s): No

Comment # 13

Commenter: Bonnie Gee

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: Will you be publishing the results of this monitoring?

Response: It becomes public information when the report is finished.

Part of the Consent Decree we hope to get signed, requires quarterly reporting, and dust monitoring is part of it. I (Mike Blum) forgot to mention that there will be archaeologists on site as the work is done. They will be there to see if anything is found. The scrapers will take off one foot lifts of soil and the archaeologists will follow along to the side of the scrapers to see if there are any artifacts. HRA is the archaeological firm being used at the site. The Nisqually Tribe has also hired an archaeologist to spend 24 hours a week on site. They will also have tribal monitors during the excavation activities.

There will be three crews and each will have an archaeologist and, if possible, a tribal monitor. If something is found, they will move on to another area.

There has been progress with the National Historic District.

Responders: Jeff King, Bob Martin, and Mike Blum

Change to the Document(s): No

Comment # 14

Commenter: Roger Westman

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: With a golf course comes a clubhouse. With that comes an access road, construction, sewers, underground utilities...where will those buildings and roads be?

Classification called commercial, what kind of commercial are we talking about, businesses, and retail, what is meant by commercial?

Response: Office and business park.

The City Comp Plan is controlled by the City, determining road construction.

As part of the cleanup action, Ecology is only dealing with the construction of the golf course itself. Ecology has nothing to do with the building of a clubhouse or roads.

We (the companies) plan to construct concurrently with the golf course, an access road and parking lot and we aren't sure yet about plans for permanent or temporary clubhouses.

Responders: Mike Blum and Bob Martin

Change to the Document(s): No

Comment # 15

Commenter: Roger Westman

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: Where is the clubhouse going to be?

Responses: Bob Martin showed the planned area on a map.

This is a Quadrant issue but from Ecology's viewpoint, it is covered through the City.

We (Weyerhaeuser) are currently working with the City and planning engineers and doing traffic studies to see what the impact will be for golf course traffic on McNeill.

We (City of DuPont) called it a business and technology park, but you call it commercial. It isn't commercial in the sense that it will be retail.

Responders: Bob Martin, Mike Blum, and Dennis Clarke (City of DuPont)

Change to the Document(s): No

Comment # 16

Commenter: Bob Printz

Comment Type: Public Workshop Meeting Comment

Document: NA

Location in Document: NA

Comment: I thought a lot of traffic would come down from Hoffman Hill, and all come down from McNeill?

Response: Discussed layout on map: Perimeter road south of Old Fort Lake, along fence line. It will be 35 mph. It is the hope of the City that traffic will use this road more than McNeill.

Responder: Dennis Clarke

Change to the Document(s): No

Comment # 17

Commenter: DuPont Toxics Citizen Oversight Project (DTCOP)

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Elevated ground water concentrations for DNT continue to be reported over 7 years after completion of the most recent Interim Source Removal (ISR) cleanup actions for known source areas of DNT (1992 to 1995). In addition there have been notable peaks and valleys in the observed levels but there are no clear trends apparent. The fact that on going elevated levels continue to be observed several years after the ISRs with no clear downward trend implies an on going source(s) as yet un-remediated may still exist.

Using the average estimated aquifer flow rate (reported in the FS for the purpose of pump and treat evaluation as ranging from 3,500 gpm to 7,000 gpm) of 5,250 gpm and, for illustration purposes, the value of observed DNT from the existing monitoring wells of 0.25ug/l (mid range based on the presented RI data although we understand the most recent data show increased levels) yields an annual DNT discharge from the site of about 5.8 pounds of DNT. If the most recent site groundwater monitoring data reflects higher levels then higher overall site DNT discharge would also be indicated proportionately.

There is no analysis or discussion presented in the documents regarding this issue and what type or size of source would be necessary to produce the observed effect of elevated DNT levels. It is apparent that if shallow sources associated with the soils to be scraped exist they would be removed during the planned remediation, but any material which has migrated into deeper soils or is buried deeper than the excavation depths would not necessarily be detected in the planned confirmation monitoring. Therefore we recommend that this issue be evaluated further in the context of the additional planned monitoring activities and periodic WDOE reviews after the remedial action has been completed, as discussed further below.

Response: DNT source removal occurred from 1991 to 1995 when DNT impacted soils were disposed of off-Site. Areas where there are remaining potential DNT sources are in the northwestern third of the site in areas where manufacturing or storage occurred. With the exception of placement areas, the remaining top 1 foot of soil will be excavated and moved to placement areas. The soil will be removed using a deliberative process and if any signs of DNT (or other) sources are identified they will be investigated and dealt with appropriately. Signs of DNT impacted soils would include signs of buried material, drums or DNT crystals. It is believed that this approach will be effective in identifying any remaining source areas.

Data from 34 rounds of combined pre-RI and RI groundwater sampling at 30 well locations indicate that low DNT concentrations have been consistently detected in 6 of 30 Site groundwater monitoring locations. The concentrations of DNT in groundwater have not fluctuated greatly.

Because the majority of detected DNT concentrations are consistently low, are not affecting surface water, and the aquifer is currently not used as a drinking water source, Natural Restoration has been selected as the remedial alternative. Ecology agreed to the selection of this alternative by issuing a "No Active Remedial Action" letter for Site groundwater.

Groundwater monitoring will be required at the Site until DNT concentrations below drinking water standards are obtained in four consecutive sampling rounds. Monitoring will take place for DNT at a minimum of five locations. The wells that will be monitored as part of the cleanup action are monitoring wells MW-3, MW-6, MW-19, and MW-22 and a new monitoring well installed down gradient of RI Area 25 and the Seep too. Groundwater wells will continue to be sampled annually each March.

An analysis was performed in 1997 to determine when the peak DNT concentrations were found in groundwater. Ecology reviewed this information and agreed to annual monitoring in March of each year based on those data.

The highest DNT concentration ever detected in an on-Site well was 3.8 ug/L in MW-27 in January of 1995. This concentration is less than ½ of the MTCA surface water criterion for DNT which is 9.1 ug/L. If any of the results from future sampling of these wells is greater than 3.8 ug/L Ecology will meet with Weyerhaeuser and DuPont to discuss the results.

Responder: Washington State Department of Ecology (Ecology)

Change to the Document(s): Yes. Change to the CAP (Cleanup Action Plan) and FS concerning compliance monitoring for groundwater and the fact that the Companies will meet with Ecology if the results are greater than 3.8 ug/L. Modified Section 6.6.3 of CAP and Section 8.4 of FS.

Comment # 18

Commenter: DTCOP-2

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Discussion of natural restoration for the aquifer system in the documents is limited to a statement that this will occur. There is no basis for this conclusion presented, and it appears overstated without further justification provided in the documents. The reports do not provide an estimated restoration timeframe for ground water, which under the natural attenuation (no action) alternative will be accomplished largely through the high flushing capacity of the ground water at the site. Given a high aquifer flushing capacity, continuing elevated DNT concentrations in ground water during compliance monitoring, without a confirmed downward trend, would be inconsistent with all significant DNT sources already having been removed.

At a minimum the basis for this conclusion should be developed and an approach developed to evaluating it further in the context of the required future WDOE periodic reviews. We are not recommending a comprehensive fate and transport modeling approach to this topic at this time. However we do recommend that the subject be evaluated and discussed to address the questions raised in these comments.

Degradation of TNT to DNT in soils could also be implicated as a secondary source of DNT. Ecology should identify a timeframe and trigger levels to address the implementation of contingent actions should significant DNT levels continue to be observed. Since property development activities in possible source areas may make further investigations difficult or impossible, the schedule for such development activities should also be considered in selecting the timeframe for further investigations or groundwater evaluations.

We note that the network of groundwater monitoring locations for the site is not comprehensive and we

recognize that in an aquifer system of this nature (high volumes of flow and rapid flow velocities) it is difficult to monitor at a high level of precision. The new monitoring well in its proposed location (relative to DNT contaminated soils formerly removed) may provide meaningful information on this issue.

Recognizing that the assumption that natural restoration will be effective, along with the currently relatively low observed levels, at the site is key to the selected option of no active groundwater remediation being implemented, it is important to address the issues raised in the preceding paragraphs.

As a result we suggest a thorough groundwater quality assessment of the DNT occurrences and trends 2 years after completion of the scraping project. If there is no clear downward trend after a few years of additional monitoring then the implication would be that an ongoing source exists, at which point additional contingent actions as discussed below should be considered. If an ongoing source exists its nature could result in pulsing or ebbing and flowing of contaminant releases (e.g.: a deteriorating drum exposed to increased or fluctuating levels of water percolation resulting from scraping or construction activity could result in releases occurring intermittently).

The timing of such a groundwater quality assessment (not necessarily limited to DNT analyses alone) should take into consideration the condition of the site and recent site activity. It is not clear what effect, if any, changes in site surface conditions will create in groundwater quality. In general it can be expected that during and immediately following construction activity elevations in groundwater contaminants will potentially be observed. Conversely as site development continues and larger areas are effectively covered with impervious surfaces such as buildings, roads and parking lots the potential exists to reduce mobilization of contaminants by reducing the potential for leaching. These issues should be considered in the groundwater quality assessment process.

Response: See Response to Comment 17. Also, Ecology agrees with much of issues and questions raised. To ensure that groundwater contamination doesn't get worse, Ecology conducts a 5-year review of sites once they reach the end of the planned cleanup action, which help to ensure the cleanup remains protective of human health and the environment. Ecology will evaluate groundwater data both during and especially following the soil scraping process. Weyerhaeuser and DuPont companies maintain long-term liability for contamination left on site. If contamination levels rise after the cleanup is conducted (on-site deposition, cap and cover), the companies will have to work with Ecology to resolve the problems. It remains to be seen whether groundwater contaminant concentrations increase or decrease with the planned cleanup action. The companies, with on-going Ecology oversight, will be monitoring groundwater. The planned cleanup action is designed to address lead and arsenic-impacted soil. Confirmation soil sampling will be conducted, following the soil scraping, to ensure the cleanup is adequate.

Responder: Ecology

Change to the Document(s): No

Comment # 19

Commenter: DTCOP-3

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Whereas we do not take issue with the determination of impracticability of aquifer restoration by pump and treat mechanisms for this aquifer system, we do believe that contingency planning is appropriate to address the DNT issue should elevated levels continue to be seen with no downward trend. Future contingency actions should consider steps such as:

Additional groundwater monitoring and data analysis to more accurately identify problem areas and groundwater quality trends.

Further focused source investigation based on the results of additional monitoring to identify source areas and land development impacts (positive or negative).

Source removal actions if discrete sources are identified.

Focused pump and treat efforts to address limited localized groundwater problem areas.

It is possible that a determination could be made by WDOE in the future that elevated groundwater levels exist but not at levels severe enough to warrant further remediation efforts or that alternatives for further action are impractical. Such a determination would be based on a satisfactory determination by the PLPs and a thorough assessment of current site groundwater quality information.

Response: See Response to Comment 17. Also, groundwater concentrations of dinitrotoluene (DNT) have been pretty consistent over time. The concentrations are low, but 5 monitoring wells routinely exceed the drinking water standard. If problems arise, such as groundwater contaminant concentrations rise unexpectedly, Ecology has the right to require the companies to conduct further investigation or cleanup actions. There are also re-openers in the proposed Consent Decree between Ecology and the companies.

Responder: Ecology

Change to the Document(s): No

Comment # 20

Commenter: DTCOP-4

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Ground water compliance monitoring is proposed based on one sampling event per year per monitoring well. We understand that the available ground water monitoring database will be used to identify the season of peak DNT concentrations in ground water, and that compliance monitoring samples will be collected only in that identified season. Given the length of the available record and variability in ground water DNT concentrations, seasonal patterns or trends for DNT still appear uncertain at this time.

We recommend that Ecology require quarterly ground water monitoring for DNT at the 6 compliance monitoring wells for the first two years. If those additional data identify trends, that would be very helpful in the groundwater quality assessment process or if the data confirm the identification of the season with highest DNT levels, further ground water sampling could focus on that season. If not, Ecology can adapt the schedule for ground water sampling to provide broader seasonality data (e.g., by continuing quarterly sampling or invoking a rotating season schedule of sampling every 3 or 5 quarters).

Response: See Response to Comment 17. Groundwater sampling originally occurred on a quarterly basis - once every 3 months. That data was evaluated and Spring was chosen as the time of year with potentially the highest concentrations. As noted earlier, the concentrations are relatively stable, without a lot of variability over the year. Groundwater monitoring is now being conducted on an annual basis, with sampling occurring in the Spring.

Responder: Ecology

Change to the Document(s): No

Comment # 21

Commenter: DTCOP-5

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: An oral cancer potency factor of $0.68 \text{ (mg/kg-day)}^{-1}$ for mixed DNT is listed in Ecology's CLARC manual. That oral CPF is used in the reports to calculate a screening value of 0.13 ug/L for ground water based on a drinking water exposure pathway (e.g., see DCAP Table 4-1). In an apparent omission, the CLARC manual does not use the oral cancer potency factor for mixed DNT to calculate a cancer risk-based cleanup level for soils. Unless there is a strong rationale (e.g., an explanation given in the IRIS file) for why the oral cancer potency factor should not apply to ingested soils as well as ingested drinking water, the CPF of $0.68 \text{ (mg/kg-day)}^{-1}$ should be used to calculate cleanup levels and remediation levels for DNT in soils based on cancer risks, and the text and tables revised accordingly. The default MTCA Method B cleanup level for soils would be 1.5 ppm.

Response: A cleanup level for dinitrotoluene (DNT) in soil of 1.5 mg/kg is presented in the Risk Assessment (RA) report (see Table 2-3). Ecology has approved a site-specific cleanup level for total DNT (i.e., 2,4-DNT + 2,6-DNT) of 3.0 mg/kg. This value will be added to Table 4-1 of the DCAP. It should be noted that there is only one remaining location on-Site where the DNT cleanup level is exceeded and that location will be excavated as an MSU.

Responder: Ecology

Change to the Document(s): Yes. Modify the table in the Cleanup Action Plan (CAP) by adding the DNT cleanup level. Modified Table 4-1 of the CAP.

Comment # 22

Commenter: DTCOP-6

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: The HHRA evaluations of soils data for the 4 open space exposure (remediation) units demonstrate that the targeted acceptable risk levels for human health are exceeded in all 4 units (see HHRA Table 4-7). The selected cleanup alternative for all 4 open space remediation units is No Action; see DCAP section 6.1.3. (The justification statement at DCAP section 6.1.3 states incorrectly that these areas meet cleanup standards for the protection of human health, contrary to the HHRA results). Since acceptable risk levels are exceeded, and under the No Action proposal potential soil exposures would not be further controlled (e.g., by access restrictions or soil capping), it seems that the MTCA threshold requirement for protectiveness (see WAC 173-340-360(2)) is not met. This requires more discussion by Ecology, including the representativeness of the data, the degree of exceedance of acceptable risk levels, and the possibility for comparatively focused cleanup actions (small areas), community interests, and applicability of the threshold requirement for protectiveness of human health at these open space units.

Response: Text will be added to the Feasibility Study (FS) which will discuss each Open Space remediation unit (RU) and the selected remedy.

The OS-1 RU is adjacent (i.e., south of) to Sequalitchew Creek. There are three locations where the lead concentrations exceed the ecological screening level and these three locations will be added to the list of Miscellaneous Small Units (MSUs) and excavated.

There are several locations in OS-2 and OS-3 RUs where the arsenic or lead concentrations exceed the open space cleanup or remediation levels. These exceedances are associated with former roads, hot spots, or are included in the Sequalitchew Creek NGRM MSUs. The exceedances that are not included in the Sequalitchew Creek NGRM MSU will be added to the MSU list and excavated.

The OS-4 RU is the open space surrounding Old Fort Lake. There are no lead exceedances but, there are four locations that have arsenic concentrations marginally above the area background concentration of 32 mg/kg. This open space unit requires special consideration as to the ecological impacts associated with cleaning up existing contamination at low concentrations vs. impacts to the local ecology or, in this case, the lake if no action was

taken. The area surrounding the lake has steep slopes and any soil excavation would result in the removal of all vegetation in the excavation area. The removal of vegetation would also remove the existing habitat and increase the potential for surface water runoff impacts to the lake. Haul roads and other impacts would also be necessary to gain access to where the exceedances are located and, along with those potential impacts listed above, could cause slope stability issues. Erosion control would be used in these areas but some impacts are likely. These potential impacts, coupled with the low contaminant concentrations, indicate that the greater harm to the environment would be to proceed with active remediation. Thus for the greater net environmental benefit, no action is a positive approach for this area.

Responder: Ecology

Change to the Document(s): Yes. Add text to the Feasibility Study. Modify the MSU (Miscellaneous Small Remediation Unit) figures in the FS and the CAP. Added text to CAP, page 6-1, Section 6.1.3 and to page 6-3, Section 6.3.4. Added text to FS, page 8-2, Section 8.2.

Comment # 23

Commenter: DTCOP-7

Comment Type: Primary Technical Review Comments (Letter received)

Document: draft CAP

Location in Document: NA

Comment: Our discussions with Ecology and the companies during this comment period clarified and confirmed our understanding that the proposed cleanup approach is intended to be a "mass excavation" approach, without attempts to fine-tune areas of surficial soils to be scraped based on the available site characterization data. Implementation of such a "mass excavation" approach simplifies many aspects of the proposed cleanup actions, requiring primarily only that appropriate compliance monitoring data show that the depth of scraping was adequate to meet the cleanup criteria. Thus, even if statistical data evaluations show that a given RU exceeds applicable criteria only because the "x2" or "10 percent" statistical criteria are exceeded (see HHRA Chapter 4), we understand that soils over the entire unit will be excavated.

This clarification is critical to an accurate understanding of the planned cleanup action as several statements in the documents could be interpreted as invoking an approach to cleanup other than "mass excavation" and caused us some confusion in our initial reading of the documents; this was only clarified after meetings and discussion with WDOE and the PLP representatives. Some examples which we noted are:

In section 6.2.1 of the DCAP the text states that excavations will be performed "in impacted areas as delineated by the RI sample data or by additional sample data", suggesting that areas to be excavated will be determined by the details of characterization data.

This statement is repeated in section 7.2.2 of the FS, where a description of the use of analytical field screening is also presented: "Where necessary, field-screening samples will be collected to guide the cleanup action and allow for more cost-effective excavation of the impacted soil".

In section 3.3 of the FS, the following statement occurs regarding actual soil volumes to be scraped: "Volumes reported below are pre-remedy estimates. The actual amount of soil excavated during the cleanup action will increase or decrease based on...actual field sampling data obtained during the cleanup action..." This suggests that sampling data could be used to decrease areas of excavation.

In section 8.2 of the FS, the preferred alternative is discussed. That text describes actions for the non-PA areas within golf course RUs as follows: "Any soils in these areas that are above the commercial remediation levels used in the RA will be excavated and placed within the PAs".

These descriptions (and perhaps other similar statements) appear to be at odds with the simpler approach of a "mass excavation". We recommend that text revisions be made as needed to present a consistent description of the "mass excavation" approach.

Response: Text revisions will be made as needed to present a consistent description of the "mass excavation" approach.

Responder: Ecology

Change to the Document(s): Yes. Modifications to the text in the RA/FS and CAP. Modified text in CAP, page 6-1, Section 6.2.1 and in the FS, page 3-2, Section 3.3, and page 8-1, Section 8.2.

Comment # 24

Commenter: DTCOP-8

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Chapter 3 of the FS provides estimates of volumes of soil for remediation based on detailed evaluations of site data. This discussion may not be intended to provide soil volume estimates that apply to the selected preferred alternative using a "mass excavation" approach, but there are no other volume (or area) estimates in the documents that do apply to the preferred alternative. Therefore the Chapter 3 information presentations such as the identification of only 263 out of 336 acres of commercial RUs as requiring soil excavation are confusing (see FS Table 3-1).

For clarity, we recommend that the FS provide information on the total areas that are proposed to be scraped under the preferred alternative and provide a discussion of any and all areas not to be excavated and the rationale for their omission. Thus, areas already addressed by ISR actions may not be included (although the completeness of those actions may need to be reviewed if any of the cleanup levels or remediation levels used to make the original decisions is revised downward). Similarly, the acreages within designated placement areas of the golf course RUs may not have to be excavated (they will effectively be capped in place). Some historic areas will also be capped in place without soil excavation.

This information could be presented simply for all of the areas where excavation is planned in a summary table.

Response: Text and/or a table will be added to the FS to clarify the total areas that are proposed to be scraped under the preferred alternative.

Responder: Ecology

Change to the Document(s): Yes. Created a new figure for the FS that will be included in Chapter 3 as Figure 3-1, and added text to page 3-4, Section 3.5.

Comment # 25

Commenter: DTCOP-9

Comment Type: Primary Technical Review Comments (Letter received)

Document: Risk Assessment

Location in Document: NA

Comment: The HHRA, section ES.4.2 states that except for the industrial land use area, soil remediation levels were calculated using the equations in WAC 173-340-740 (unrestricted land use soil cleanup standards). That section of the MTCA cleanup regulation specifies an acceptable cancer risk level of 1×10^{-6} . However, as noted in HHRA section 3.5.2.4 (see page 3-8), and in HHRA Appendix E tables, the commercial and golf course land use scenarios involving adult rather than child exposures actually use an acceptable cancer risk level of 1×10^{-5} (equal to the industrial land use value in WAC 173-340-745) for calculating site-specific cleanup levels or remediation levels.

We believe that the MTCA cleanup regulation as revised and amended (Feb 12, 2001 version) requires use of the 1×10^{-6} acceptable cancer risk level for all non-industrial exposure scenarios, even if only adults are involved. (As noted in HHRA Appendix C, section C.2, Attachment #1, previous Ecology guidance may have differed). Ecology should confirm the MTCA requirements in this regard and their application to the DuPont Site. Use of the stricter acceptable cancer risk level would result in lowering calculated cleanup or remediation levels by a factor of 10. (See HHRA Appendix E tables; for example, the cancer-risk based remediation level for soil arsenic for commercial and golf course worker scenarios would be 61 ppm divided by 10, or 6.1 ppm - which would default to MTCA's assumed background concentration of 20 ppm). We note that WAC 173-340-357(c) states that the acceptable risk level for remediation levels shall be the same as that used for the cleanup level.

We also note that the HHRA actually uses the 1×10^{-6} acceptable cancer risk level to identify EUs that need to be addressed in the FS (see Tables 4-6 and 4-8). It states in section 4.2.2 (page 4-1) the following MTCA risk-based criterion: "The human health risk level for individual constituents may not exceed...a cancer risk of one-in-a-million ($1\text{E-}06$) for historical, open space, golf course, and commercial EUs". This approach, which we believe matches the requirements under the current MTCA cleanup regulation, is not consistent with the approach for calculating cleanup levels and remediation levels using a 1×10^{-5} acceptable cancer risk level.

Response: Ecology has previously approved site-specific remediation levels (see Appendix C of the Risk Assessment) for the Site. These remediation levels will be used during the course of the cleanup. These remediation levels are based on site-specific exposure scenarios and are protective of the reasonably maximum exposed (RME) individual as stipulated in MTCA. In addition, the application of these remediation levels will not result in an exceedance of the cumulative risk level of $1\text{E-}05$ which is consistent with the old and new versions of MTCA (see WAC 173-340-708).

The Risk Assessment will be updated so that the individual analyte cancer risks are compared to a risk level of $1\text{E-}05$ for the commercial, golf course, and industrial exposure scenarios and $1\text{E-}06$ for open space and historical exposure scenarios.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the Risk Assessment. Updated RA page 4-1, Section 4.2.2; page 4-2, Section 4.3; page 4-3, Section 4.4.1; and modified the shading in Table 4-6.

Comment # 26

Commenter: DTCOP-10

Comment Type: Primary Technical Review Comments (Letter received)

Document: Risk Assessment

Location in Document: NA

Comment: Our reading of the reports leads us to believe that site-specific remediation levels were developed with an assumption that they replaced, or "took precedence over", MTCA (default) cleanup levels. This is not consistent with our understanding of the role of remediation levels under MTCA (see especially WAC 173-340-355 - "Remediation levels are not the same as cleanup levels" - and 173-340-708(10)). Cleanup levels must be established for every site (WAC 173-340-355(2)); remediation levels establish concentrations above which certain specified (often more costly) actions will be applied, but some actions - including containment (e.g., consolidation and capping) and institutional controls - are required to address any hazardous substances exceeding the cleanup levels. (See the examples in WAC 173-340-355). Where an alternate RME scenario is used to derive remediation levels, they generally define the concentrations below which only institutional controls (to maintain the alternate RME scenario exposures as reasonable, excluding others) are required.

Cleanup versus remediation levels does not appear to us to be a matter of "either/or", but rather a question of "both". The mixing of cleanup and remediation levels (and the implicit dropping of some of the applicable,

underlying cleanup levels) in the summary tables in the reports seems to us confusing. We believe the presentation would be much clearer if all of the cleanup levels were first identified and summarized, followed by the site-specific remediation levels being used to identify specific components of the proposed cleanup actions.

Response: Cleanup levels (i.e., method B cleanup levels and soil-to-groundwater cleanup levels) are presented in Chapter 2 of the RA. Chapter 2 of the RA identifies constituents of potential concern for the subsequent evaluation by comparing the maximum detected site concentrations to these cleanup levels. In some cases the MTCA cleanup levels were modified based on site-specific information (as allowed under MTCA). This information included site-specific leaching studies and other information and has been approved by Ecology.

All of the levels that will be used to evaluate compliance sample results are remediation levels, with the exception of arsenic in open space and historical areas where the area-wide background concentration will be used. Site-specific remediation levels were developed using site-specific or land-use specific information to develop alternative reasonable maximum exposure scenarios (RME). These values are remediation levels because they are either based on non-residential future land uses (which require institutional controls) or because they are associated with engineering controls.

The documents will be reviewed and care will be taken to ensure that the terms CL and RL are used correctly.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the RA. Updated page 3-1, Section 3.2.

Comment # 27

Commenter: DTCOP-11

Comment Type: Primary Technical Review Comments (Letter received)

Document: Risk Assessment

Location in Document: NA

Comment: There are actually two golf course worker scenarios used for calculation of site-specific remediation levels in the golf course land use RUs. The first one is equivalent to the commercial worker scenario in the parameter values chosen, and is used to define soil contaminant levels that need to be consolidated and capped in the golf course placement areas. The second one uses lower soil contact rate and exposure frequency parameter values and is used to calculate remediation levels for removal and offsite disposal of more highly contaminated soils (see HHRA Appendix C, section C.2, Attachment #1; see also FS Appendix H).

Only the results for the first golf course exposure scenario are included in many of various summary tables of cleanup levels and remediation levels (e.g., see HHRA Table ES-1 and Table 3-7; DCAP Table 4-1 includes both). However, in many places in the text, discussions of the golf course worker scenario and calculated golf course remediation levels actually refer to the second description whose results are not included in the summary tables. This resulted in some unnecessary confusion. We recommend that both golf course exposure scenarios, suitably labeled, be included in all of the summary tables so that text references can be made clearer.

Response: Two golf course worker scenarios were identified in the documents. The golf course worker scenario in the RA does not take into account engineering controls. The second golf course worker scenario in the FS takes into account engineering controls (i.e., the implementation of the cap/cover remedy). This remedial alternative was selected in the FS after evaluating a variety of alternatives. It is not appropriate to choose a remedial alternative as part of the RA. Therefore, the second golf course worker scenario will remain in the FS and will not be discussed in the RA. The documents will be reviewed to ensure that this rationale is implemented consistently throughout all of the documents.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the RA. Added text to page 3-3, Section 3.5.1.2.

Comment # 28

Commenter: DTCOP-12

Comment Type: Primary Technical Review Comments (Letter received)

Document: Risk Assessment

Location in Document: NA

Comment: Evaluations of all soils data over a depth interval as broad as 1 to 15 feet are too broad to reflect realistic exposure scenarios. Soil contamination levels of potential concern may frequently be diluted by the inclusion of additional data not reflecting a similar probability of soil contact; for example, a contaminated 1 to 2 foot layer exceeding established cleanup levels may be "statistically diluted" to appear much lower. We recommend that the discussions of results for data from the broad 1 to 15 foot depth interval be characterized as generally descriptive rather than as a detailed exposure assessment. It can be noted that the ultimate decisions on depths of soil excavation will be made based on sampling results for small, surficial depth intervals (6 inches; see DCAP section 6.6.2) during compliance monitoring.

Response: We agree with the comment and the documents will be modified to characterize discussions of results for data from the broad 1 to 15 foot depth interval as generally descriptive.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the RA. Added text to page 4-2, Section 4.3.

Comment # 29

Commenter: DTCOP-13

Comment Type: Primary Technical Review Comments (Letter received)

Document: Risk Assessment

Location in Document: NA

Comment: The HHRA screens detected contaminants at the site to identify constituents of possible concern for the soil-to-ground water pathway. The results (see HHRA section 2.5.2.1 and Tables 2-3 through 2-6) identify a list of constituents for this pathway. The HHRA states that remediation options for these COPCs are presented in the FS. However, only one constituent is actually discussed in the FS for ground water. The FS at section 1.4.3 states only that the RI and RA identify only one constituent exceeding drinking water standards (DNT).

A brief discussion should be added to the FS presenting the rationale for dismissing the list of constituents in HHRA Table 2-6 and the soil-to-ground water pathway. Presumably this rationale will be based on ground water monitoring results; the locations of monitoring wells versus soil locations with constituents above soil-to-ground water criteria values should be included in the discussion.

Response: The list of constituents in the RA Table 2-6 were not dismissed in the FS. In fact, with the exception of cadmium, all instances where constituent concentrations exceeded the soil-to-groundwater criteria were identified as MSUs. Locations where the cadmium concentration exceeded the soil-to-groundwater criteria were not designated as MSUs since this contaminant has not been detected in groundwater, occurs in very low concentrations, has an average/mean concentration that is below the cleanup level, has a low number of exceedances (less than 5%) of the cleanup level in comparison to the number of detections and/or samples collected, and have no known source associated with activities at the Site.

Responder: Ecology

Change to the Document(s): No

Comment # 30

Commenter: DTCOP-14

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: USEPA has issued guidance for the IEUBK lead model stating that soils data used with the model should be obtained through chemical analysis of the <250 um (<0.25 mm) particle size fraction. We have already provided you with reference information from USEPA Region 10 staff, and a citation to an EPA website, on this issue. The concentrations for lead (and arsenic) are generally assumed to increase as the particle size fraction of soils decreases. For the DuPont site, the FS provides size-fraction data that confirm this increase in concentration with smaller particle sizes (see FS Appendix C for lead, especially Table C-3; for even more detailed arsenic data, see FS Appendix D). The result of using data from the standard MTCA analyses of <2mm soil particles in the lead model, as at the DuPont site, instead of EPA-recommended <0.25 mm data, is that exposures and risks are biased low. Calculated soil cleanup or remediation levels using the IEUBK model that are met using <2mm soil lead data could in fact be exceeded using <0.25 mm data for the same samples.

The current MTCA cleanup regulation requirement to analyze the <2mm size fraction of soils (see WAC 173-340-740(7) (a)) is thus inconsistent with EPA guidance for use of the IEUBK model. This issue has already been raised with the Ecology policy section (e.g., in connection with the Area Wide Task Force process, which also addresses soil contamination by lead and arsenic). We believe Ecology needs to make a policy decision on how to incorporate EPA's guidance for using the IEUBK model under MTCA. In fact, similar scientific (exposure assessment) issues are raised for the soil ingestion pathway for constituents other than lead, including arsenic, since the primary question is what particle sizes of soils (and dusts) is being ingested.

The relationship between soil particle sizes and lead concentrations has been established scientifically; we have site-specific information for the DuPont Site. At a minimum, this information should be used to provide an uncertainty discussion for the IEUBK results as applied to compliance with site-specific cleanup or remediation levels for soil (i.e., bringing together the EPA guidance and the FS Appendix C results). The HHRA would in fact be improved if a general section on uncertainty was added, so that Ecology could make risk management decisions based on a more complete characterization of the state of knowledge.

We also recommend that Ecology carefully consider the available information on lead concentrations by particle size and EPA's guidance for the IEUBK model in reviewing and approving the detailed sampling and analytical protocols for compliance monitoring of soil cleanup actions. The uncertainties in the current HHRA regarding lead risks because soil lead data represent the <2mm size fraction would be of little consequence if compliance monitoring data were collected based on analysis of the <0.25 mm fraction.

Response: The current site remediation levels for lead were established based on two years of work focused on developing, reviewing, and certifying the IEUBK model by Ecology, the Companies, outside experts, and the SAB. The results of this work are the Ecology approved site-specific remediation levels. Any change to these levels would require a similar time frame and would not begin until EPA formally requires this approach at hazardous waste sites. Ecology has determined that the benefit of a timely cleanup outweighs the potential benefit of potentially modifying remediation levels based on this new guidance.

A general uncertainty section will be added to the RA.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the Risk Assessment. Chapter 5 added to the RA.

Comment # 31

Commenter: DTCOP-15

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Development of the proposed cleanup plan for the DuPont Site has proceeded over a period of many years. The reports include as attachments a number of documents completed some time ago (see especially the

HHRA, Appendix C materials) that provide supporting information. Those materials are very helpful in understanding the development of various aspects of the proposed cleanup plan. However, because the attached materials are dated, they are in some respects no longer consistent with or representative of the rest of the information presented in the reports. For example, summaries of DNT data from ground water monitoring wells are not current with the complete database provided in the RI report, and the exposure parameters used to calculate TPH soil cleanup levels are not consistent with the exposure parameters ultimately used for the rest of the HHRA evaluations and development of other cleanup and remediation levels.

We recommend that a general statement be added to reflect an understanding that some of the details in the appended materials are inconsistent because of the time at which they were originally prepared, but that those inconsistencies do not affect the selection of the preferred cleanup alternative. In addition footnotes could be placed wherever appropriate to clarify this question. Issues affecting the calculation of cleanup or remediation levels (still listed in the summary tables, e.g. Table 4-1 of the DCAP) are of somewhat more concern, but may still be addressed in ways that do not require rewriting the appendix materials (e.g., to note that soil TPH remediation was accomplished to concentrations well below the original calculated cleanup levels).

Response: A general statement will be added to the RA to communicate that some of the details in appendix C are inconsistent because of the time at which they were originally prepared, but that those inconsistencies do not affect the selection of the preferred cleanup alternative.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to Risk Assessment. Chapter 5 added to the RA.

Comment # 32

Commenter: DTCOP-16

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: The elevated regional soil arsenic concentrations are the result of releases from the former Tacoma Copper Smelter, as determined from regional soil sampling studies under the Tacoma Smelter Plume site investigations. The background concentration for soil arsenic as determined from sampling near the DuPont Site (32 ppm) therefore represents an area background rather than a natural background value (see WAC 173-340-200 definitions), as noted at HHRA section ES 4.4.

Under MTCA, natural background but not area background concentrations can be used to constrain soil cleanup levels (see WAC 173-340-740(5) (c), 173-340-700(6) (d), and 173-340-705(6)). If cleanup of portions of a site below area background levels would result in recontamination, cleanup actions may be delayed but not eliminated (see WAC 173-340-360(4)(d)); under those circumstances, the remedial action shall be considered an interim action until cleanup levels are attained.

The DuPont Site reports use the 32 ppm "background" concentration for soil arsenic as a cleanup level or remediation level (e.g., see DCAP Table 4-1); compliance with that criterion is assumed to establish completion of a final cleanup action with respect to soil arsenic for specified RUs. This appears to be inconsistent with the MTCA cleanup regulation provisions related to the two types of background concentrations, and could affect the selected cleanup levels for soil arsenic. Ecology should review the application of these sections of the MTCA cleanup regulation to the DuPont Site.

Response: Comment Noted. Ecology approved the use of the 32 mg/kg (i.e., ppm) as the area background concentration for arsenic in 1996. In the approval letter, Ecology stated: "So, what does that 32 ppm determination mean in terms of site cleanup decisions? Ecology will not require any soil cleanup to be more stringent than 32 ppm irrespective of land use" (Letter from Mike Blum to Vern Moore and Jack Frazier, March 11, 1996). This letter will be added to Appendix C of the RA

Responder: Ecology

Change to the Document(s): Yes. Letter to be added to Appendix C of the Risk Assessment. Text added to Chapter 5.

Comment # 33

Commenter: DTCOP-17

Comment Type: Primary Technical Review Comments (Letter received)

Document: Risk Assessment

Location in Document: NA

Comment: We recognize that the companies and Ecology have had long discussions regarding ecological risk assessment and the development of criteria for protection of the environment. The HHRA identifies lead as the only constituent of concern for ecological risks and establishes a criterion value of 118 ppm lead in soil (see HHRA section 3.4; see WAC 173-340, Table 749-3). In HHRA Appendix A the exclusion of arsenic, the other widespread soil contaminant at the DuPont site, as a constituent for ecological evaluation is explained as follows: "Human health standards for arsenic are protective of ecological organisms. Therefore, remediating arsenic contamination to meet human health standards will ensure protection for ecological receptors". In this statement it is unclear to us whether the human health standards for arsenic being referred to be the typical Method B values, defaulting to assumed natural background of 20 ppm, or the higher remediation levels proposed for the DuPont Site (DCAP Table 4-1).

We recommend that the discussion in HHRA Appendix A regarding the exclusion of arsenic as a constituent for ecological risk assessment be expanded somewhat for clarity. Following the approach used for lead, and assuming that surficial soil arsenic would be present as arsenic V (unsaturated, aerobic conditions) for example, it might be sufficient to note that the MTCA Table 749-3 value for wildlife of 132 ppm is higher than any of the proposed soil arsenic remediation levels based on protection of human health, and that arsenic may therefore be eliminated.

Response: The discussion in Appendix A in the RA focusing on the exclusion of arsenic as a constituent of ecological concern will be expanded.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the Risk Assessment. Text added to page A-3, Section A-6.

Comment # 34

Commenter: DTCOP-18

Comment Type: Primary Technical Review Comments (Letter received)

Document: Feasibility Study

Location in Document: NA

Comment: Were any constituents detected at the DuPont Site eliminated as COPCs, or assigned to a No Action alternative, because they were not known to be associated with historic site activities? Some comments in the text (e.g., see FS section 7.6.1) suggested to us that certain detected constituents (particularly at MSUs) were eliminated from further consideration using a criterion requiring historic association with site activities. Since the MTCA definition of facility (equivalently, site) includes places where "hazardous substances...have come to be located" (WAC 173-340-200), Ecology should (in the DCAP) discuss and provide the policy rationale for elimination of any constituents from further consideration because they are not known to have been associated with historic site activities.

Response: Yes, cadmium was eliminated (see Section 8.3, page 8-3 of the FS and section 6.3.2 on page 6-3 of the DCAP). No action is appropriate for small occurrences of cadmium since this contaminant has not been detected in groundwater, occurs at very low concentrations, has an average/mean concentration that is below the cleanup level, has a low number of exceedances (less than 5%) of the cleanup level in comparison to the number of detections and/or samples collected, and has no known source associated with activities at the Site.

Responder: Ecology
Change to the Document(s): No

Comment # 35

Commenter: DTCOP-19

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Compliance monitoring sampling for soils is described in DCAP section 6.6.2. Composite sampling (5-to-1) is proposed for MSUs. Discrete sampling (point sampling) is proposed for cells within each of the larger RUs. We recommend that Ecology adopt a small composite sampling approach for the cells (approximately one-half acre in size) in the larger RUs, with composition ratios of no more than 5-to-1. Detailed sampling protocols (e.g., random sampling versus center of cell and along four diagonals, etc.) can be identified in later compliance monitoring sampling and analysis plans. Remediation results will be made for each cell on an all-or-none basis. In the balancing between representativeness and detectability of remaining contamination (more locations are better) and possible dilution of results, we favor better representativeness. The exposure scenarios in the risk evaluations involve long-term exposures for which average rather than peak concentrations are of primary interest. If there are "hot spots" with higher concentrations remaining, they are more likely to be found with 5 sampling locations rather than 1.

The DCAP (see section 6.2.2) proposes not to perform any statistical data evaluations, but rather proposes to simply compare single results to applicable cleanup or remediation levels (Composite sampling techniques will also provide only a single analytical result). This constitutes an alternate statistical method for evaluating compliance under MTCA. The DCAP should include a discussion and rationale for this alternate statistical approach (compare to the Everett Smelter Site FCAP, which similarly involved decisions on a very large number of decision units).

Response: Composite sampling (5 to 1) will be used to evaluate compliance. Text will be added to the CAP indicating Ecology's approval of this method.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the FS and CAP. Text was added to FS - page 7-2, Section 7.2.2 and to the CAP - page 6-6, Section 6.6.2.

Comment # 36

Commenter: DTCOP-20

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Ecology has noted that the screening for contaminants of potential concern included an evaluation of possible fish consumption exposures and risks using representative tribal (subsistence) fish consumption rates that are higher than MTCA default values. Those results are not presented in the HHRA. They should be added (e.g., in section 2.5 and Appendix C). We understand that the results showed no significant risks and would not in any event affect the selected approach for ground water remediation (e.g., natural attenuation) at the DuPont site.

Response: Fish consumption is an incomplete exposure pathway, and therefore, was not evaluated in the RA. Ecology performed an evaluation of this pathway and that evaluation is appended to this responsiveness summary.

Responder: Ecology

Change to the Document(s): No. Copy of March 24, 2003 letter from Ecology to Nisqually Indian Tribe added to this Responsiveness Summary.

Comment # 37

Commenter: DTCOP-21

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Neither the CAP nor the Consent Decree reference the Memorandum of Agreement (MOA 2000) between Weyerhaeuser Company, Weyerhaeuser Real Estate Company, Nisqually Point Defense Fund, Committee for the Preservation of the Nisqually Mission Historical Site, Nisqually Delta Association and the DuPont Historical Society. This MOA was developed during negotiations that ran through the year 2000. The MOA 2000 develops a framework for the establishment of a National Historic District along the banks of the Sequelitchew Creek. That agreement grew out of dialog between the PLP's, the City of DuPont and a variety of citizen groups regarding the preservation of historic resources in and around the Consent Decree Area. The MOA 2000 provides specific provisions which impact, to some measure, the scope and location of cleanup activities. We therefore believe it is important that this agreement be referenced in both the Consent Decree and the Cleanup Action Plan.

Response: The MOA is outside the scope of this cleanup project and will come into effect after the cleanup is completed. It will be referenced in the CAP.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to CAP. Text added to page 2-3, Section 2.6.

Comment # 38

Commenter: DTCOP-22

Comment Type: Primary Technical Review Comments (Letter received)

Document: draft CAP

Location in Document: Section 2.6, Figure 2.1

Comment: In Section 2.6 of the DCAP, reference is made to historical resources in the Consent Decree Area, and four are listed. The DCAP then proceeds to explain that the 3 sites comprise 4 acres (which 3 are being referred to is not defined): this is confusing. Is this discrepancy reflective of all recent agreements on preservation of buffers on the three sites indicted on Figure 2.1? The MOA 2000 allows for a one acre Methodist/Episcopal Mission site. Is that the acre which is not included? That seems to be the case, given the statement in that same section that the "size and location" of the Mission Site is not known.

The site itself was in fact identified and was long ago marked by the first private citizen to own the property (a former Hudson's Bay Company employee), and a series of memorials, ever more substantial, have been maintained ever since to mark that place. We request that the location of that marker be indicated on Figure 2.1, and that this discrepancy be clearly resolved in the final documents.

Earlier in the cleanup process, there was an unfortunate incident where the concrete and bronze marker that memorializes the Methodist/Episcopal Mission site was temporarily removed. While it has been returned to something close to its original location, we have received numerous expressions of concern that the exact location of that mark be accurately reestablished, mapped and documented in a manner which will assure it will not be lost during the cleanup process.

Understanding that the area where the marker sits is not intended to be included in the mass excavation efforts, it still seems to us a reasonable concern that heavy equipment operation in the area might (once again) disturb the marker. We would therefore request that the exact latitude and longitude of the marker be recorded in the DCAP, and that the spot be indicated on Figure 2.1. We would also request that the State Office of Historic Preservation be asked to confirm that the marker location they have recorded from earlier investigations

corresponds with the relocated marker coordinates. We would also note that we have heard again from citizens interested in historic preservation that there is still potential for further archeological investigation around that site. We are therefore forwarding a request that a non-invasive preliminary investigation be allowed to build on the site studies conducted by Guy Moura in 1989. This would certainly assist in accurately replacing that marker.

Response: The three sites referred to in the DCAP are the shell Fort Nisqually Cemetery (45PI404); Shell Midden (45PI72); and 1833 Fort Nisqually Site (45PI55). The location of the Methodist Mission monument will be added to the figures but, the boundary will not be defined as this will be done after the cleanup is complete. No work is planned within 250 feet of the Methodist Mission marker.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the RA and CAP. Text was added to the RA: page ES-1, Section ES-2, Section ES-3.1, Figure ES-2 and Chapter 2, page 2-1, Section 2.2.3 and Figure 2-2. Text was also added to the CAP, page 2-3, Section 2.6, and Figure 2-1.

Comment # 39

Commenter: DTCOP-23

Comment Type: Primary Technical Review Comments (Letter received)

Document: NA

Location in Document: NA

Comment: Future land uses discussed in section 1.5 of the Feasibility Study describe land use areas divided at Sequelitchew Creek, with only industrial uses to the north, and commercial, historical and recreational uses to the south. We would point out that the Methodist/Episcopal Mission Site is to the north of Sequelitchew creek (in the area designated for industrial land use). According to the MOA 2000 Weyerhaeuser has committed to commemorate that site, and connect that memorial to other Historic District sites by a trail system. Additionally Weyerhaeuser has agreed to allow a historic preservation organization to purchase a one acre or greater site in commemoration of the Mission. We therefore believe this section should reflect those agreements.

We also would appreciate more discussion addressing remediation measures around (and over) historic sites. In particular it would be appropriate to clarify in this discussion the appropriateness of the cleanup levels to be applied to the historic sites in relation to their land use and surrounding land uses.

Response: Additional text will be added to the FS to clarify remediation measures around historical sites. Note that flexibility needs to be maintained when working in these areas to balance the needs of the cleanup with the protection of cultural resources.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to FS. Text was added to page 8-3, Section 8.2.

Comment # 40

Commenter: DTCOP-1

Comment Type: Editorial Comments (Letter received)

Document: draft CAP

Location in Document: NA

Comment: See DCAP language at section 4.4.5. The concentrations of all identified hazardous substances will not be below the cleanup levels or remediation levels after the proposed actions are complete, as stated. For example, some soil results for the open space remediation units exceed those values, but no action is proposed for all open space units. Ground water DNT concentrations may continue to exceed the 0.13 ug/L screening level for some time (no projected time for compliance is provided).

Response: The text will be modified to ensure consistency.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the CAP. Sentence on page 4-3, Section 4.4.5 was deleted.

Comment # 41

Commenter: DTCOP-2

Comment Type: Editorial Comments (Letter received)

Document: draft CAP

Location in Document: NA

Comment: See DCAP language at section 4.3. Remediation levels do not "take precedence" over cleanup levels, as stated. See WAC 173-340-355(2) and (3). Where remediation levels are developed that exceed cleanup levels, some action (e.g., continuing institutional controls, or long-term containment) is still needed to address remaining contamination between the cleanup levels and remediation levels. Establishing a remediation level does not replace the underlying cleanup level.

Response: The referenced sentence in section 4.3 will be modified.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the CAP. Sentence on page 4-2, Section 4-3 was deleted.

Comment # 42

Commenter: DTCOP-3

Comment Type: Editorial Comments (Letter received)

Document: draft CAP and RA

Location in Document: Section 6.1.3 of DCAP, Tables 4-4, 4-7, and 4-8 in RA

Comment: See DCAP statement at section 6.1.3 that the open space remediation units "currently meet cleanup standards for the protection of human health". This statement is inconsistent with the results presented in the HHRA report that none of the open space RUs is in compliance (e.g., see Table 4-4 of the HHRA, as well as Tables 4-7 and 4-8).

Response: Text in this section will be updated. See response to comment number 22.

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the CAP and FS. Added text to CAP page 6-3, Section 6.3.4 and to page 6-1, Section 6.1.3. Added text to FS, page 8.2, Section 8.2

Comment # 43

Commenter: DTCOP-4

Comment Type: Editorial Comments (Letter received)

Document: RI and FS

Location in Document: Page 3-18 RI, pages 1-3, and 7-18 FS.

Comment: The reports include conflicting statements regarding time trends for DNT in ground water monitoring wells. For example, see pages 1-3 and 7-18 in the draft FS report and page 3-18 in the draft RI report. Given the variability in DNT concentrations at individual wells over time, any time trends are not obvious. Any conclusions regarding time trends should be supported by proper statistical data evaluations (see, for example, Statistical Methods for Environmental Pollution Monitoring by R.O. Gilbert, Van Nostrand Reinhold 1987 for applicable non-parametric trend tests).

Response: Conclusions regarding trends will be removed from the documents (FS & CAP).

Responder: Ecology

Change to the Document(s): Yes. Changes to be made to the RI and FS. Text was modified in RI, page 3-18, Section 3.2.3 and in the FS page 7-21, Section 7.12.

Comment # 44

Commenter: DTCOP-5

Comment Type: Editorial Comments (Letter received)

Document: RA

Location in Document: Table 4-6

Comment: See HHRA report, Table 4-6. The table appears to be missing a line for exposure unit OS1.

Response: A line for OS-1 will be added to Table 4-6.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to RA. A line was added to Table 4-6 in the RA.

Comment # 45

Commenter: DTCOP-6

Comment Type: Editorial Comments (Letter received)

Document: draft CAP

Location in Document: Section 5.6.1.

Comment: See DCAP language at section 5.6.1. Removal of contaminated soils from the site would eliminate potential (onsite) exposure pathways to the contaminated soils. However, consolidation and containment (with a cap/cover system) serve to control rather than eliminate the soil exposure pathways. The golf course maintenance worker scenario estimates exposures based on continued (limited) soil contact. Long-term inspection and maintenance of the containment system will continue to control potential soil exposures. Control rather than elimination is a better description, since disruption of the cap/cover could still result in exposure to contaminated soils. Use of the term control is consistent with the requirement, as noted in section 5.6.1, for long-term maintenance of the containment system. The elimination of an exposure pathway, on the other hand, would require no long-term actions.

Response: Text will be modified in the DCAP to address this comment.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the CAP. Modified text on page 5-4, Section 5.6.1.

Comment # 46

Commenter: DTCOP-7

Comment Type: Editorial Comments (Letter received)

Document: draft CAP

Location in Document: section 6.2.2

Comment: See DCAP language at section 6.2.2 regarding glacial kettles (and also see FS at page 7-3). This statement seems to indicate that surface soils may be directly pushed into glacial kettles outside of the placement areas. We assume that if possibly contaminated surface soils are placed into a glacial kettle, and that glacial kettle is outside of a designated placement area, that the kettle would in effect become another placement area and a cap/cover would be installed. We suggest that the process of filling any onsite glacial kettles be described in more detail to avoid any misinterpretation.

Response: The text will be modified to clarify that soil will only be pushed into glacial kettles if they are already designated PAs.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the FS and CAP. Modified text in CAP, page 6-2, Section 6.2.2 and in the FS, page 7-3, Section 7.2.3.

Comment # 47

Commenter: DTCOP-8

Comment Type: Editorial Comments (Letter received)

Document: draft CAP

Location in Document: Section 6.6.1

Comment: See DCAP language at section 6.6.1 regarding cap/cover depth as a human health barrier. The second golf course worker exposure scenario (for calculation of remediation levels above which soils would be taken offsite rather than left in the placement areas) assumes some limited contact with contaminated materials below the human health barrier. If the barrier is constructed based on the "maximum depth in which a golf course worker is expected to excavate", then no contact with contaminated soils below the barrier would occur. This minor inconsistency should be resolved.

Response: This is not an inconsistency. In all likelihood, there will not be any worker exposure to contaminated soil in placement areas. It was determined by Ecology, however, that to be conservative some exposure was possible under extreme conditions. This degree of limited exposure was included in the calculations for setting the remediation level. This comment highlights the conservative (i.e., health protective) exposure assumptions that were used to derive the golf course worker remediation levels.

Responder: Ecology

Change to the Document(s): No

Comment # 48

Commenter: DTCOP-9

Comment Type: Editorial Comments (Letter received)

Document: FS

Location in Document: Table C-3.

Comment: Under the column for Area 40 (Packhouse) data, the entry for total lead is given as 30,000 mg/kg. This appears to be a typo. It is inconsistent with the concentrations by size fractions, entered in the same data block. See the text on page C-6, which indicates the 30,000 mg/kg value should perhaps be 3,000 mg/kg.

Response: The noted typo will be corrected.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the FS. Modified text in Appendix C, page C-26.

Comment # 49

Commenter: DTCOP-10

Comment Type: Editorial Comments (Letter received)

Document: FS

Location in Document: Pages ES-2 and 1-2.

Comment: There appears to be a minor inconsistency in the figures given at these two locations for the volume of soils removed during Interim Source Removal actions (72,000 tons versus 63,393 tons).

Response: The inconsistency in Interim Source Removal Volumes will be corrected.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the FS. Modified text in FS, page ES-1, Section ES.3, and page 1-2, Section 1.3.

Comment # 50

Commenter: DTCOP-11

Comment Type: Editorial Comments (Letter received)

Document: FS

Location in Document: ES-3, Figure 1-3, Figure 6-2

Comment: How many small MSUs are there? The text at FS page ES-3 states that there are 49, while FS Fig 1-3 shows more than 70. Have some of the MSUs shown on Figure 1-3 already been cleaned up, accounting for the smaller count given in the text? See also DCAP Figure 6-2 which shows a smaller number of MSUs than FS Figure 1-3, and a different system of identifying labels.

Response: The number of MSUs will be corrected.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the FS and CAP. Text in FS, page ES1-3, Chapter 1 Figure 1-3; and CAP Figure 6-2 and text in CAP.

Comment # 51

Commenter: DTCOP-12

Comment Type: Editorial Comments (Letter received)

Document: FS

Location in Document: Page 3-1.

Comment: The figure given for acres of open space land uses - 12.9 acres - appears to be in error. Compare the figure of 73.21 acres (including 22.35 acres of Old Fort Lake) given in Table 2-1 of the HHRA report.

Response: The figure in the FS will be corrected.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the RA and FS. Acreages were modified. Changes in FS include: page 3-1, Section 3.2; page 3-3, Section 3.4.1; and Figure 3-1 (new figure). In the RA changes include: page 2-1, Section 2.2.1 and page 2-5, Section 2.2.3 Table 2-4.

Comment # 52

Commenter: DTCOP-13

Comment Type: Editorial Comments (Letter received)

Document: FS

Location in Document: Page 3-2 in section 3.4, second paragraph.

Comment: The paragraph discusses excavation depths. In the second sentence, the term "actual lateral extent" appears to refer to depths rather than lateral (horizontal) extent, and should be reworded.

Response: This sentence will be reworded.

Responder: Ecology

Change to the Document(s): Yes. Change to be made to the FS. Page 3-2, Section 3.4 was modified.

Comment # 53

Commenter: DTCOP-14

Comment Type: Editorial Comments (Letter received)

Document: FS

Location in Document: Page 4-3 and elsewhere

Comment: With discussion of obtaining permits as part of implementability. Under MTCA, it is not necessary to obtain permits, only to demonstrate substantive compliance with permit conditions that would otherwise be required.

Response: Comment noted.

Responder: Ecology

Change to the Document(s): No

Comment # 54

Commenter: Lorraine Overmyer, DuPont Historic Society

Comment Type: E-mail comment

Document: NA

Location in Document: NA

Comment: During our review of the Toxic Waste Cleanup Plan, we found several statements that are of concern to us.

The statement "the Mission Site has not been located" is contradictory to all of the findings by a number of people who have been working on this project for a many years. Both Archaeologist Lee Stillson and Guy

Morua did studies for an earlier Weyerhaeuser report and stated they believed the Mission site was located on the north side of the creek. In addition, much research has been done by members of the Nisqually Point Defense Group, The Committee For The Preservation of The Nisqually Mission, headed by Dr. James Edgren, The Nisqually Delta Association, and The DuPont Historical Society.

On a site tour, Lee Stillson found fragments of brick in the area of the Mission marker, believed to be from the Mission chimney.

When the Weyerhaeuser Company removed the marker placed on the site by the Washington State Historical Society in 1927 for storage during cleanup of the area, they stated the site was marked on a map and that the monument was returned to the location where it now stands.

Our other concern is the statement in Section 1.5 of the Feasibility Study which describes land use areas. This states the land north of the creek will be designated for industrial use, while the area south of the creek will be used for historical, recreation and commercial activities. In that we believe the Mission site is located on the north side of the creek, this statement gives us great concern.

Response (E-mail): In terms of the Mission site, I think the dispute is over the exact/specific location, not the general location (or being pretty close). I believe everyone agrees that the Mission was located on the north side of the Sequatchew Creek and "generally" in the area where the marker was placed and is again today. It's the level of precision that is in dispute, as I understand it.

In terms of that area north of the creek being designated for industrial land use, it will be Weyerhaeuser Real Estate (Quadrant) who will get to wrestle with the issue of the mission site and future uses - not Ecology and maybe not Weyerhaeuser Co. You and/or James Edgren and/or others should probably talk with Greg Moore with Quadrant about future land use/development in that area. No further cleanup work is planned or needed in that area north of the creek. There was no cleanup (soil removal) in the vicinity of the mission marker. Most of the cleanup north of the creek and within Parcel 1 was in the area of the Burning Ground and along the railroad corridors.

Responder: Mike Blum (Ecology)

Change to the Document(s): No

Comment # 55

Commenter: Dennis Clarke, Planning Director, City of DuPont

Comment Type: Letter received

Document: NA

Location in Document: NA

Comment: Thank you for the opportunity to comment on the above referenced documents. We appreciate the work of Ecology and the companies in preparing, reviewing, publishing and supporting complete and very readable documents. Your information workshops along with the one sponsored by your grant recipient, DTxCop, was very helpful to our Planning Agency, who reviewed the documents as well. The City remains concerned that a separate schedule needs to be worked out to cap the old rail line corridor down the entire length of the Sequatchew Creek Canyon, not just for the portion within the consent decree area. Our concern is that this area should receive priority treatment and be done ahead of other work, since it doesn't need a grow-in period as the golf course cap does to be effective. This area is important to the City because the consent area currently limits public access to Puget Sound at its only practical access point.

Response: Whereas it isn't likely that special considerations can be made to release portions of the property within the consent decree prior to public review of the closure documents, Ecology will attempt to work with the Companies on this issue.

Responder: Ecology

Change to the Document(s): No

Comment # 56

Commenter: Cal Page

Comment Type: Letter received

Document: NA

Location in Document: NA

Comment: I have been a DuPont resident for the past six years and have regularly participated in the many briefing sessions held on site. Prior to retirement, I was employed in several capacities as a professional microbiologist, college professor, pharmaceutical research management and as CEO of domestic and off-shore technology oriented companies. These responsibilities have provided an intimate knowledge of toxicological procedures as well as ecological impacts of a wide variety of waste products.

I have been particularly impressed with the program and execution of Weyerhaeuser Company and the E.I. duPont de Nemours Company. They have been open, cooperative and concerned while working well with regulatory representatives. It is, therefore, with great pleasure that I recommend approval of this project at the earliest possible date.

As a sidelight, I am very familiar with the ecological/toxicological properties of the primary contaminants associated with the clean-up of the former DuPont Munitions factory. Besides my technical career, I had personal association with both materials while being one of ten farm children in Minnesota.

First, our old farm house, our playing blocks, our kitchen furniture, and our cribs were coated with one or more coats of lead-based paint. Second, during the dust storms and grasshopper plagues of the mid-1930 era, we protected our crops by spreading a poison bran mixture which stopped the hopper invasion. I worked on this project for about three summers along with my father and brothers. The active ingredient was arsenic.

In both instances, the lead and arsenic exposure concentrations were significantly higher than levels of these two materials found in soils in and around DuPont. My parents lived into the upper 80 years, and no child was injured by this exposure even though many were young enough to be considered at risk. Currently seven of us are still alive and all are over seventy years of age. From all of this, my conclusion is that the planned Decree is excellent but it also represents significant and unnecessary overkill. The costs and delays associated with this project to date are inexcusable. The Department of Ecology should consider the risk- benefit ratios during any and all controversies during the completion of this project and err on the side of financial justice.

Response: Comments noted.

Responder: Ecology

Change to the Document(s): No

Comment # 57

Commenter: Nancy Hanrahan

Comment Type: E-mail received

Document: NA

Location in Document: NA

Comment: My concern about the Dupont cleanup site is that I have a client who is very ill and she has been working in the new State Farm Insurance Building. I am wondering if her illness could be environmentally caused. She has been diagnosed with fibromyalgia, but as we know, that diagnoses covers a lot of territory. Ten or 15 years ago I came upon this site while looking for waterfront property. I was driving around Dupont and came to a dead end with a cyclone fence, a tower with a huge siren on top of the tower. I parked; a guard of some kind appeared and as we chatted he told me that the trees along the freeway were covered in dynamite dust and if one fell down the whole area would go up in explosion. He said that all the dirt in the area was laced with dynamite. Secondly, I was wondering if dynamite can be a source for Perchlorate contamination of the water table and water sources.

Response (e-mail response): I am the Ecology project manager for the Weyerhaeuser-DuPont cleanup site. I was forwarded your e-mail and I will respond to it.

What the "guard" told you was totally wrong. The trees are not covered with dynamite or any other contaminants associated with the former DuPont Works site. The dirt in the area is also not laced with dynamite. If a tree fell down, it would just go crash, not boom. The freeway is about one mile or more away from the former DuPont Works cleanup site. There is contamination at the site; the remaining contaminants are mostly lead and arsenic.

There are not any off-site impacts beyond the chain link fence that surrounds the 636 acre site. The area where the State Farm building was erected was not impacted by any activities of the former DuPont Works plant and like the freeway, quite a distance from the cleanup site.

From your description "I was driving around Dupont and came to a dead end with a cyclone fence, a tower with a huge siren on top of the tower." Was that in the Village of DuPont, or just past the Village down the main drag through the town? If so, I believe that tower with the siren on top was part of the former Civil Defense System and possibly related to the DuPont Works site, in case there were emergencies/explosions at the plant.

I recently heard from a knowledgeable person that Perchlorate has been tested for at other similar commercial explosives plant and was not found. The municipal water supply wells for the City of DuPont are located up-gradient from the cleanup site and are clean. The cleanup site has low levels of DNT (dinitrotoluene) in groundwater but there is no possibility of that contamination getting into the City Wells located on Bell Hill area.

I am sorry your client is ill and has fibromyalgia, but I do not believe there is any connection to the former DuPont Works cleanup site. A friend has had fibromyalgia and got relief with therapeutic massage. Not sure what else she did, but I haven't heard her talking about it for quite a while.

Responder: Mike Blum (Ecology)

Change to the Document(s): No

Comment # 58

Commenter: Brenda Leech

Comment Type: E-mail received

Document: NA

Location in Document: NA

Comment: Information re: how Steilacoom is affected by the DuPont contamination. A helicopter was recently hovering over my property at a very low level. I was able to clearly see a man leaning out taking photos. I have a natural spring running the center of my property and approx 50 yards from my home and very near my children's play areas. Is this an area targeted for monitoring? Is there a concern that our soil may be contaminated? Please let me know why the helicopter "hung around" so long and what they were assessing/evaluating.

Response (e-mail response): I am the Ecology project manager for the DuPont - Weyerhaeuser cleanup project. There are no impacts, either groundwater or soil (or windblown dust) from the DuPont cleanup site into Steilacoom.

The soil contamination remaining at the site is primarily lead and arsenic. The groundwater under part of the site has been impacted by dinitrotoluene (DNT), a compound used in making dynamite. The concentrations are low, but some are above the drinking water standards. The drinking water for DuPont comes from wells up-gradient and from a deeper aquifer. The slightly contaminated groundwater at DuPont flows directly west towards Puget Sound. The groundwater contamination is located south of Sequelitchew Creek. From where you live on Starling St, you are quite a distance (5 miles) from the former DuPont Works explosives site. No impacts from soil or groundwater in Steilacoom.

In terms of the helicopter over your property, I have no idea who that was or what they were doing. 2/13/2003

I did ask someone at Ecology about the helicopter issue. She had gotten some complaints/calls about them and from what she has found out; they seem to be related to security at Ft Lewis and the railroad. You might call the public affairs office at Ft Lewis and ask them.

One other thing to mention. There is a study going on with the Tacoma Pierce County Health Department to look at impact of arsenic from the old Asarco Smelter that was located in Ruston. Arsenic has been found in soils as far south as Steilacoom and DuPont as well as far north as Maury and Vashon Island and south King County. Results of the Pierce County study are on-going and results have not been released, as far as I know.

Responder: Mike Blum (Ecology)

Change to the Document(s): No

Comment # 59

Commenter: R. D. Gale

Comment Type: E-mail received

Document: NA

Location in Document: NA

Comment: The house site we are now considering for purchase is a few blocks from the fence line of the Dupont works site. There is a new phase of houses opening up on the other side of Center ST. I am wondering if it would be safer to live at the new phase because of the cleanup that will go on at the works site.

Would you live and have your children live, a few blocks from the Dupont works site as it is being cleaned. The Olympia, Tumwater area is another area we are considering purchasing a home in. Do you know of any ecological problems in these areas that we should be aware of?

I am also wondering what the Lead levels that were found near North West Landing are.

How far was the Dupont works site cleaned before the development near it began? Is the ground water in North West Landing safe and separate from the water on the site?

Response (e-mail response): I don't believe it will be less safe being closer to the DuPont Works site during the cleanup. Based on their (Weyerhaeuser and DuPont companies) past quality performance in cleanup at the site and attention to safety, and of course the oversight of the Department of Ecology, I would have no fear of living with my family a few blocks from the DuPont Works site as it is being cleaned up. The concern is wind-blown dust during excavation and scraping of the contaminated top layer of soil. That has not been a problem in the past. I am unaware of any overall ecological problems in the Olympia/Tumwater area. There are location specific problems due to leaking underground storage tank (LUST) or contamination from prior practices at some business and industries, as well as probably some residential properties. You can look at the Ecology databases of LUST sites as well as our Confirmed and Suspected Contaminated Sites list at the following web address: <http://www.ecy.wa.gov/programs/tcp/sites/sites.html> Look at the Confirmed and Suspected Contaminated Sites Report and the UST/LUST list. The lead levels in soil surrounding the DuPont Works site, but not at the cleanup site, ranged from less than 6.4 parts per million to 57 parts per million. The soil-lead cleanup standard is 250 parts per million. Higher lead concentrations were found at the cleanup site itself. A one foot deep layer of contaminated topsoil by about 300 feet wide was removed from the southern fence line prior to that new section of homes being built. A lot of other cleanup work has occurred over the past 11 years, primarily removal of the higher concentrations of lead and arsenic in soil around the facility. The drinking water for the City of DuPont, which includes all of the Northwest Landing development, is clean. The production wells are in the Bell Hill area and are up-gradient from the groundwater contamination at the cleanup site and have not and will not be impacted in the future. Responder: Mike Blum (Ecology)

Change to the Document(s): No

Comment # 60

Commenter: Drew Crook, Lacey Museum

Comment Type: Letter received

Document: NA

Location in Document: NA

Comment: I was pleased to receive the January 2003 update on the Former DuPont Works. Thank you for keeping me on the mailing list. As a historian, I have a great interest in the heritage of the DuPont area. What a heritage that is! Native Americans, Hudson's Bay Company employees, American settlers, US soldiers, and DuPont Company workers have all lived on the Former DuPont Works site. Their story reveals much about the development of the region.

I urge the Washington State Department of Ecology, the E.I. DuPont de Nemours Company, and the Weyerhaeuser Company to make a maximum effort during the Former DuPont Works site cleanup process to identify and preserve cultural resources that might be found. These archaeological materials could have unique and significant historical value. They are irreplaceable.

Response: Comment Noted

Responder: Ecology

Change to the Document(s): No

ATTACHMENTS TO THE RESPONSIVENESS SUMMARY:

1. Letters from the public
2. E-mails from the public
3. Letter from Ecology to Nisqually Indian Tribe, dated March 24, 2003 (w/ attachments)

